

REMARKS

In the February 9, 2007 Office Action, the drawings were objected to and claims 1, 2, 4, 5, 6, 8, 10, 12, 14, 16, and 18 stand rejected in view of prior art, while claims 3, 7, 9, 11, 13, 15, 17, and 19 were indicated as containing allowable subject matter. Claims 1-19 were rejected as being indefinite for failing to particularly point out and claim distinctly the subject matter that Applicants regard as the invention. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the February 9, 2007 Office Action, Applicants have amended claims 1, 7, 8, 10, 12, 14, 16, and 18, cancelled claims 9, 11, 13, 15, 17, and 19, and have submitted herewith a corrected drawing sheet replacing the original Fig. 1. Applicants wish to thank the Examiner for this indication of allowable subject matter and the thorough examination of this application. Thus, claims 1-8, 10, 12, 14, 16, and 18 are pending, with claims 1, 8, 10, 12, 14, 16, and 18 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Drawings

In item 1, a corrected drawing was required because Fig. 1 lacked a legend designating it as prior art. In response, Applicants have submitted a corrected drawing sheet having the required legend and replacing the original Figure 1.

In item 2 of the Office action, the drawings were objected to for failing to comply with 37 CFR §1.83(a) because it was stated that the drawings did not show the controller receiving the value of the division rate of the divider. In response, Applicants have amended

claim 1 to delete the limitation "and the division rate of the driver." Applicants believe that the drawings are now correct, and respectfully request withdrawal of the objections.

Rejections - 35 U.S.C. § 102

In items 3 and 4 of the Office Action, claims 1 and 4 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,909,331 (Ballantyne). In response, Applicants respectfully traverse the rejection and have included comments to support the traversal.

In particular, the Office action stated that Ballantyne anticipates claim 1 because it includes a frequency voltage controller 106, which functions as the voltage detector in claim 1 of the present application. However, as the Office Action indicates in the specific part of Ballantyne (Column 1, lines 65-67), Applicants respectfully assert that the frequency voltage controller 106 of Ballantyne merely detects the difference in waveforms between the divider and one from the master oscillator 100 and compares whether or not one chronologically leads (or lags) from the other. In contrast, the voltage detector of claim 1 of the application detects the control voltage V_{1pf} outputted from the loop filter 203. Applicants respectfully assert that detecting the chronological difference between the divider and the master oscillator is different from detecting the control voltage. It is well settled under U.S. patent law that for a reference to anticipate a claim, the reference must disclose each element of the claim within the reference. Therefore, Applicants assert that claim 1 is not anticipated by the prior art of record.

Moreover, Applicants believe that the dependent claim 4 is also allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, the dependent claim 4 is further allowable because it includes additional limitations. Thus, Applicants believe that since the prior art of record

does not anticipate the independent claim 1, neither does the prior art anticipate the dependent claim.

Applicants respectfully request withdrawal of the rejections.

Rejections - 35 U.S.C. § 103

In item 6 of the Office action, claim 2 is rejected as being unpatentable over Ballantyne and in view of US 2001/0036239 (Oka). In item 7 of the Office action, claim 5 is rejected as being unpatentable over Ballantyne in view of US 6,593,783 (Ichimura). In item 8 of the Office action, claim 6 is rejected as being unpatentable over Ballantyne in view of US 6,425,132 (Chappell). In response Applicants respectfully traverse the rejection of claim 1 and included comment to support the traversal.

More specifically, Applicants believe none of the combinations of the prior art discloses or suggests the voltage detector, and therefore respectfully request that the rejections be withdrawn.

Ballantyne

Discussion regarding the Ballantyne reference has been advance above. Applicants believe that Ballantyne reference does not disclose or suggest the voltage detector recited in claim 1 of the present application for the aforementioned reasons.

Oka

The Oka reference was cited to disclose a division rate of the divider set by the controller and the variation of frequency division rate allowing for smoothing of the variation in the frequency of the clock signal. Applicants respectfully assert that Oka fails to disclose or to suggest the voltage detector recited in claim 1 of the present application. Thus, Applicants believe that the Oka reference does not address the deficiency of the Ballantyne reference.

Ichimura

The Ichimura reference was cited to disclose a capacitor for voltage detection including an analog to digital converter. Applicants respectfully assert that Ichimura fails to disclose or to suggest the voltage detector recited in claim 1 of the present application. Thus, Applicants believe that the Ichimura reference does not address the deficiency of the Ballantyne reference.

Chappell

The Chappell reference was cited to disclose a voltage controlled oscillator including at least two controlled oscillators, and one of the voltage controlled oscillator being activated according to a control signal provided by the controller. Applicants respectfully assert that Chappell fails to disclose or to suggest the voltage detector recited in claim 1 of the present application. Thus, Applicants believe that the Chappell reference does not address the deficiency of the Ballantyne reference.

In view of the above comments, Applicants respectfully assert that the Ballantyne reference, the Oka reference, the Ichimura reference, and the Chappell reference do not disclose or suggest the arrangement of claim 1 of the present invention individually or in combination. Therefore, applicants believe that the prior art of record does not anticipate or render claim 1 of the present application obvious.

Moreover, Applicants believe that dependent claims 2, 5, and 6 are also allowable over prior art of record in that they depend from independent claim 1. Thus, Applicants believe that since the prior art of records does not disclose or suggest the invention as set forth in independent claim 1, the prior art of record also fails to disclose or suggest the inventions as se forth in dependent claims 2, 5, and 8.

In item 9 of the Office Action, claims 8, 10, 12, 14, 16, and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,683,502 (Groen et al.) in view of U.S. Patent No. 6,792,064 (Nakamura). In response, Applicants have amended independent claims 8, 10, 12, 14, 16, and 18 to recite the limitations of claims 9, 11, 13, 15, 17, and 19 respectively, which were indicated as containing allowable subject matter. Applicants have also cancelled claims 9, 11, 13, 15, 17, and 19. Applicants believe that claims 8, 10, 12, 14, 16, and 18 are allowable.

Applicants respectfully request that the rejections be withdrawn in view of the above comments and amendments.

Claim Rejections - 35 U.S.C. §112

In item 12 of the Office action, claims 7, 8, and 14 are rejected as being indefinite. In item 13 of the Office action, claim 6 is rejected as being indefinite. In item 14 of the Office action, claims 8, 10, 12, and 16 are rejected as having insufficient antecedent basis. In item 15 of the Office action, claims 14 and 15 are rejected as incomplete for omitting essential steps. In item 16 of the Office action, claims 1, 16, and 18 are rejected as being indefinite. In item 17 of the Office action, claims 16 and 18 are rejected as being unclear. In response, Applicants have amended claims 1, 6, 7, 8, 10, 14, 16, and 18, and cancelled claim 15.

Specifically, Applicants have amended claim 7 to add limitation “one” before “capacitor” in order to clarify the indefinite claim language.

Applicants have amended claim 8 to introduce a Markush group in order to clarify the indefinite claim language.

Applicants have amended claim 14 to replace “grasping” to “confirming” in order to clarify the indefinite language.

Applicants have amended claim 6 to clarify the claim language. Specifically, Applicants have defined the voltage controlled oscillator having at least two sub voltage controlled oscillators, and one of the sub-voltage controlled oscillators is activated according to a control signal provided by the controller. Applicants believe that the inappropriate antecedent basis is now eliminated.

Applicants have amended claim 8 to delete a limitation "the " in front of "first and second division rates" in order to clarify indefinite language.

Applicants have amended claim 10 to add "a predetermined" in from of "second frequency value." Applicants believe there is now sufficient antecedent basis.

Applicants have amended claim 12 to add "predetermined" before "specific frequency." Applicants believe there is now sufficient antecedent basis.

Applicants have amended claim 16 to delete the third step, which includes the recitation of the limitation "the specific frequency."

Applicants have amended claim 14 in order to clarify the step. Specifically, the step now recites controlling gains of the phase comparator and loop filter by adjusting a driving bias variable current source of a charge pump circuit, as amended. Applicants believe that the recitation clarifies the step.

Applicants have amended claim 1, 16, and 18 to delete the limitation "substantially" to clarify the indefinite language.

Applicants have amended claim 16 to delete the third step.

Applicants believe that the claims now comply with 35 U.S.C. §112, second paragraph. Withdrawal of the rejections is respectfully requested.

Allowable Subject Matter

Appl. No. 10/724,151
Amendment dated May 4, 2007
Reply to Office Action of February 9, 2007

In item 18 of the Office Action, claims 3, 7, 9, 11, 13, 15, 17, and 19 were indicated as containing allowable subject matter. Applicants wish to thank the Examiner for this indication of allowable subject matter and the thorough examination of this application. In response, Applicants have amended claims 8, 10, 12, 14, 16, and 18 to recite the limitations of original claims 9, 11, 13, 15, 17, and 19. Thus, independent claims 8, 10, 12, 14, 16, and 18 are believed to be allowable.

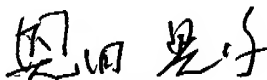
Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicants believe that these references do not render the claimed invention obvious.

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In view of the foregoing amendments and comments, Applicants respectfully assert that claims 1-8, 10, 12, 14, 16, and 18 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,



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